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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/760,145	01/16/2004	Ming Yan	LMP132US	7199
23623 7590 02/11/2008 AMIN, TUROCY & CALVIN, LLP 1900 EAST 9TH STREET, NATIONAL CITY CENTER 24TH FLOOR, CLEVELAND, OH 44114			EXAMINER PAK, SUNG H	
			ART UNIT 2874	PAPER NUMBER
			NOTIFICATION DATE 02/11/2008	DELIVERY MODE ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No. 10/760,145	Applicant(s) YAN ET AL.	
	Examiner SUNG H. PAK	Art Unit 2874	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-51 is/are pending in the application.
4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-7, 11-22, 29-35 and 37-51 is/are rejected.
- 7) ☒ Claim(s) 8-10, 23-28 and 36 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>1/16/04, 10/18/06</u> . | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

Information Disclosure Statement

Information disclosure statements received on 1/16/2004 and 10/18/2006 have been considered.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-7, 11-22, 29-35, 37-51 are rejected under 35 U.S.C. 102(e) as being anticipated by Lin (US 6,853,773 B2).

Lin discloses an integrated optical device comprising an optical component (e.g. one of the plurality of AWG elements '26' in Fig. 1A) having an optical wavelength response that is a function of temperature of the optical component (i.e. temperature dependent wavelength selection- column 6 line 52- column 7 line 3); a heating element disposed in proximity to the optical component to be capable of inducing temperature elevation of the optical component (element '28'); a temperature-sensing element capable of generating indications of temperature at location of the temperature-sensing element (column 14 lines 16-28), wherein temperature elevations induced at the location by the heating element exceed corresponding temperature

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elevations induced in at least one region of the optical device by the heating element (column 14 lines 16-63); and a temperature controller coupled to the heating element and to the temperature-sensing element to receive the indications of temperature and to set power dissipated in the heating element based on the indications of temperature received from the temperature-sensing element so as to drive the optical wavelength response to a predetermined wavelength (column 14 lines 16-28);

wherein the optical component comprises an interferometric optical filter comprising multiple optical paths of unequal lengths, wherein the interferometric optical filter comprises arrayed waveguide grating (Fig. 1a);

wherein the heating element comprises an efficient patterned heater (e.g. Fig. 11a);

wherein the temperature sensing element comprises a resistance temperature device (column 14, lines 49-52);

wherein the temperature controller performs an iterative adjustment of the power dissipated in the heating element to drive the optical wavelength response to the predetermined wavelength (column 14 lines 24-28);

wherein the temperature sensing element comprises a first patterned thin film disposed on the arrayed waveguide grating (column 14 lines 16-28);

wherein the heating element comprises a patterned thin film disposed on the arrayed waveguide grating (Fig. 11A-11E);

further comprising a second optical component (i.e. another one of the plurality of AWG waveguide elements '26' in Fig. 1A) having a second wavelength response that is a function of temperature of the second optical component (the "wavelength response" of the second optical

component is the temperature dependent wavelength selection as in the first optical component-column 6 line 52- column 7 line 3);

a second heating element disposed in proximity to the second optical component to be capable of inducing temperature elevation of the second optical component (Fig. 11A-11E);

a second temperature-sensing element capable of generating indications of temperature at a second location of the temperature-sensing element (column 14 lines 16-28), wherein temperature elevations induced at the location by the second heating element exceed corresponding temperature elevations induced by the second heating element in a second region of the optical device (column 14 lines 16-63); and a second temperature controller coupled to the second heating element and to the temperature- sensing element to receive the indications of temperature and to set power dissipated in the heating element based on the indications of temperature received from the temperature-sensing element so as to drive the optical wavelength response to a predetermined wavelength (column 14 lines 16-28).

It is respectfully noted that pending claims of the present application contain “functional language” limitations (e.g. at least claims 2, 11, 15, 18, etc.), wherein an “apparatus” claim is further limited by functions performed by the claimed apparatus (i.e. “...indication of temperature... vary as a first substantially linear function of the power dissipated...”; “... heater active portion that dissipates substantially all of the power dissipated by the heating element”; “... temperature controller is capable of determining a set-point... using analog processing”; etc).

As stated in MPEP §2114, “[w]hile features of an apparatus may be recited either structurally or functionally, claims directed to an apparatus must be distinguished from the prior

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art in terms of structure rather than function.” *In re Schreiber*, 128 F.3d 1473, 1477-78, 44 USPQ2d 1429, 1431-32 (Fed. Cir. 1997). A claim containing “a recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus” if the prior art apparatus teaches all the structural limitations of the claim. *Ex parte Masham*, 2 USPQ2d 1647 (Bd. Pat. App. & Inter. 1987). As such, while functional language limitations are not ignored, such limitations are not given patentable weight, and the claimed limitations are anticipated if a prior art apparatus is capable of performing the claimed function. MPEP §2114.

Allowable Subject Matter

Claims 8-10, 23-28, 36 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter: none of the prior art fairly teaches or suggests an integrated optical device having, *inter alia*, all the features as discussed above, and wherein a temperature controller is capable of estimating global temperature of the optical component based on one or more temperature indications received from the temperature sensing element during a time period; the power dissipated by the heating element during the time period; and the thermal constant, in the manner claimed in the instant application. Such functional limitations of a temperature controller element are clearly indicative of the fact that temperature controllers of prior art devices are materially different from the temperature controller element of the presently claimed invention. There being no

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convincing reason why one of ordinary skill in the art would modify a prior art device, *having all the additional features as discussed in the claim rejection above*, to further include a temperature controller as claimed in the instant application, the above-mentioned claims are deemed to contain allowable subject matter.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to SUNG H. PAK whose telephone number is (571)272-2353. The examiner can normally be reached on Monday- Friday, 9AM-5PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rodney Bovernick can be reached on (571)272-2344. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Sung H. Pak/
Primary Examiner
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